Ministry of Advanced Education, Training and Technology

ANNUAL REPORT

1989 - 1990

PROVINCE OF BRITISH COLUMBIA

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Ministry of Advanced Education, Training and Technology

ANNUAL REPORT

FOR THE PERIOD APRIL 1/1989 - MARCH 31/1990

PROVINCE OF BRITISH COLUMBIA

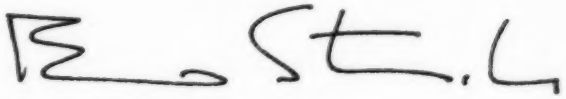
91-06487/

The Honourable David C. Lam, C.M., LL.D.
Lieutenant-Governor of British Columbia
Government House
1401 Rockland Avenue
Victoria, British Columbia
V8S 1V9

May it please Your Honour:

I respectfully submit the Annual Report of the Ministry of Advanced Education, Training and Technology for the fiscal year ending March 31, 1990.

Yours truly,



Bruce Strachan
Minister

The Honourable Bruce Strachan
Minister
Ministry of Advanced Education, Training and Technology
Room 326, Parliament Buildings
Victoria, British Columbia
V8V 1X4

Dear Mr. Minister:

I respectfully submit the Annual Report of the Ministry of Advanced Education, Training and Technology for the fiscal year ending March 31, 1990.

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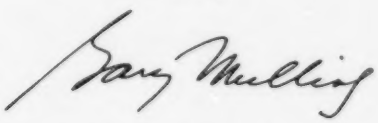

Gary Mullins
Deputy Minister

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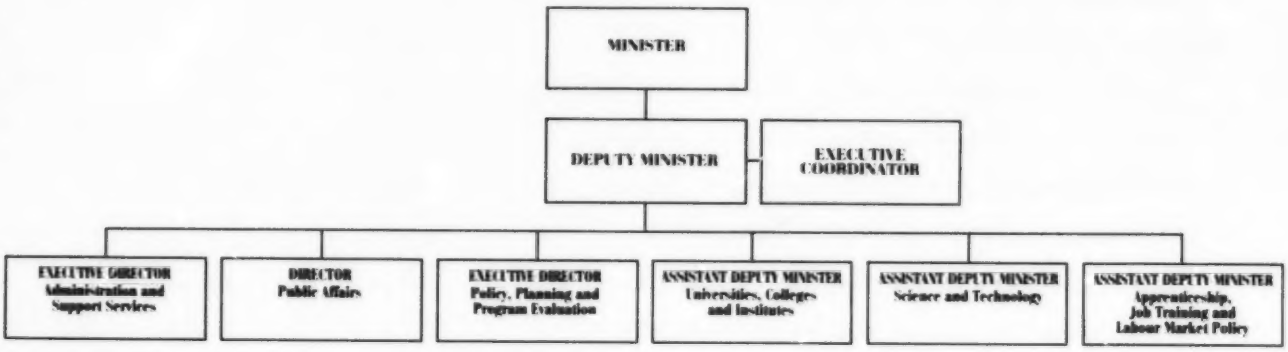
Ministry of Advanced Education, Training and Technology
ORGANIZATIONAL STRUCTURE


MINISTER
DEPUTY MINISTER
EXECUTIVE COORDINATOR
EXECUTIVE DIRECTOR Administration and Support Services
DIRECTOR Public Affairs
EXECUTIVE DIRECTOR Policy, Planning and Program Evaluation
ASSISTANT DEPUTY MINISTER Universities, Colleges and Institutes
ASSISTANT DEPUTY MINISTER Science and Technology
ASSISTANT DEPUTY MINISTER Apprenticeship, Job Training and Labour Market Policy

THE ANNUAL REPORT OF THE MINISTRY OF ADVANCED EDUCATION, TRAINING AND TECHNOLOGY

The Ministry of Advanced Education, Training and Technology is changing its reporting practices. Over the next several years, it will produce annual reports that are more relevant to the public and that reflect increasingly greater levels of accountability.

The 1989/90 Annual Report is the first of these reoriented reports. Rather than describing the internal structure of the Ministry, it focuses in detail on several selected programs as indicators of performance. The programs are grouped -- not by the division that delivers them -- but by the Ministry goal that they help achieve:

- building **individual potential,**
- developing and applying **new knowledge,** and
- being **responsive** in a changing world.

The Ministry hopes this new reporting style will help British Columbians understand the developments taking place in advanced education, technology and training in this Province.

SUPPORTING A VISION

"My government believes that advanced education is an investment by society in its future."

- Speech from the Throne, March 1989

INTRODUCTION

Through its many programs, the Ministry of Advanced Education, Training and Technology supports a vision of British Columbia that includes:

- well-educated, healthy people who are productively employed;
- a strong, globally competitive economy that maintains a high standard of living;
- a clean, safe environment; and
- a tolerant, pluralistic society where all people have the opportunity to achieve their potential.

To this end, the Ministry plays a leading role in a province-wide system of advanced education, skill development, labour market adjustment, and science and technology. The system comprises:

- universities;
- colleges, institutes and agencies;
- private training institutions;
- science and technology organizations;
- business;
- labour;
- federal and provincial ministries; and
- volunteer, community and professional associations.

The Ministry is organized in five principal divisions including: Universities, Colleges and Institutes; Science and Technology; Apprenticeship, Job Training and Labour Market Policy; Administration and Support Services; and Policy, Planning and Program Evaluation. Educators, planners, scientists and many other professionals and support staff work together to apply a broad range of collective expertise towards achieving the Ministry's goals.

Within the system, the Ministry provides leadership and co-ordination, builds partnerships, promotes communication and awareness, and funds a wide range of activities. The mission is to promote development of knowledge and skills so British Columbians can achieve their potential, and to anticipate and respond to the changing needs of society and the economy.

The Ministry works towards three main goals:

Building individual potential

By expanding their knowledge and skills, British Columbians increase their potential for employment, better earnings and a good quality of life. The Ministry helps people access the education, training and skill-updating programs most appropriate to their needs and abilities.

Developing and applying new knowledge

By conducting research and developing technology that promotes knowledge-based industries, British Columbia can develop a competitive economy and maintain its environmental integrity. The Ministry helps diversify the economy and develop a high-tech infrastructure. It encourages research and innovation. It promotes public awareness of the benefits of science and technology.

Being responsive in a changing world

By anticipating economic and social change, British Columbians can respond more effectively. The Ministry leads an education, training and research system that anticipates -- and responds to -- the needs of a dynamic economy and society. It develops partnerships, and supports lifelong learning.

The Ministry at a Glance

Three major divisions deliver the Ministry's programs:

- Job Training, Apprenticeship and Labour Market Policy;
- Science and Technology; and
- Universities, Colleges and Institutes.

Three other divisions provide support:

- Administration and Support Services;
- Policy, Planning and Program Evaluation; and
- Public Affairs.

During 1989, the Ministry's structure and responsibilities changed. The Policy, Planning and Program Evaluation Division evolved, and the Women's Secretariat was transferred to the Ministry of Government Management Services and Minister Responsible for Women's Programs. Reflecting that transfer, the Ministry of Advanced Education, Training and Technology shortened its name. It was formerly called the Ministry of Advanced Education and Job Training, and Ministry Responsible for Science and Technology, and Ministry Responsible for the Women's Secretariat.

British Columbia is the only province in Canada to combine responsibilities for knowledge creation, adult education, and training together within one ministry.

IMPROVING OPPORTUNITIES FOR TRAINING/ POST-SECONDARY EDUCATION

Information intensive industries and the increasing sophistication of traditional industries are increasingly important realities of and challenges facing the B.C. economy. This means that more than one-half of the new jobs created in B.C. during the 1990s will require at least 17 years of education and training. As technology advances and marketing becomes more global, many jobs will require higher and higher levels of knowledge and skills.

The Ministry is working on several fronts to improve opportunities for British Columbians to get the education and training they need. Key efforts during 1989/90 included the introduction of the Ministry's comprehensive "Access for All" initiative, increased operating funds for advanced education institutions, increased student financial assistance and a broadly based apprenticeship training system.

CREATING GREATER ACCESS

In 1989, the government unveiled "Access for All" -- a multifaceted program to help the post-secondary education system meet the needs of British Columbians well into the 21st century. The program resulted from more than a year of consultation with regions, communities, groups and individuals. Over a six-year period, "Access for All" commits $480 million to new operating funds for post-secondary education institutions and $210 million to new facilities.

The program is aimed at people in every region of the province -- at students in universities, colleges and institutes, at native people, illiterate people, persons with disabilities and the poor. Besides meeting future needs for well-trained employees, the program tries to address several specific problems and inequities:

- By the end of the 1980s, the B.C. student participation rate in advanced education was 7.6 per cent below the national average. In 1989/90, that is, 21.9 per cent of British Columbians aged 18 to 24 years took part in post-secondary education, compared with 29.5 per cent of all Canadians in the same age group.
- The Fraser Valley, B.C.'s fastest-growing region, was facing particularly heavy demands for post-secondary education.
- The 1988 Sullivan Royal Commission on Education forecasted a serious shortage of teachers by the mid-1990s, especially in rural and remote areas.
- Although B.C. has the highest literacy rate in Canada, 17 per cent of our population (360,000 people) do not have sufficient reading and writing skills to cope with daily demands.

MORE SPACES

To create new spaces for 4,400 students, the Ministry granted $35.3 million in 1989/90 to public post-secondary institutions under the "Access for All" initiative.

Approximately 1,400 of these spaces -- including spaces for literacy training -- were created for career, technical and vocational training at colleges and technical institutes. The remaining 3,000 spaces were for academic education at the universities and colleges.

Responding to the report from the Sullivan Royal Commission on Education, 611 new teacher training spaces were created in 1989/90 at the three universities and through university/school district rural training programs.

Although it was awaiting a full report from the Fraser Valley Access Committee, the Ministry began responding to high demand for advanced education throughout this region. Of the 4,400 new spaces created in 1989/90, 1,164 were for students in the Valley's three colleges and Simon Fraser University.

MORE PROGRAMS

Responding to workplace needs, colleges and institutes created 30 new programs, such as literacy instruction at Kwantlen College, computer communications at Capilano College, and sea farm diving at North Island College.

In a new initiative, colleges in three regions worked in partnership with provincial universities to provide classroom instruction leading to full university degrees. The creation of these university-colleges -- Okanagan College in Kelowna, Cariboo College in Kamloops and Malaspina College in Nanaimo -- is a B.C. first. In 1989/90, 325 third-year students took part in one of the six degree programs offered at the university/colleges: Arts, Science, Education, Nursing, Business and Social Work.

The government also supported a degree-granting partnership between the Emily Carr College of Art and Design and the Open University, making access to the college province-wide.

The Ministry invited Simon Fraser University, Kwantlen College, Fraser Valley College and Douglas College to take up the challenge of improving access to advanced education in the fast-growing Fraser Valley and plan additional programs.

Funds also went to a consortium made up of the five smallest, most remote colleges (Selkirk, East Kootenay Community, Northwest Community, North Island and Northern Lights) and the Open Learning Agency (OLA) to help deliver a wider range of programs to B.C.'s dispersed population. The OLA specializes in alternative teaching methods.

MORE ROOM

To create room for the expansion in post-secondary institutions, the Ministry sharply increased its capital budget from $69 million in 1988/89 to $127 million in 1989/90. Expansion efforts included a new campus for Kwantlen College, an addition to Cariboo College, plans for a new Okanagan College campus in Salmon Arm, a new bio-science building for Simon Fraser University and an expansion of the Cowichan campus of Malaspina College. Besides new buildings, capital projects included maintenance and improvement of existing facilities and the purchase of furnishings and equipment.

Further, through an Implementation Planning Group, the Ministry laid the groundwork for a university in northern B.C. Responding to regional needs, the university would offer undergraduate and graduate programs, conduct research activities and develop community service programs. It would also help address the post-secondary education concerns of native communities.

A side benefit is the economic boost to northern B.C.'s communities as a result of both direct spending and activities stimulated by the university.

In general terms, the Ministry gives guidance on government direction for the post-secondary system, allocates the resources government makes available for advanced education, and monitors service provided to ensure appropriate accountability. Post-secondary institutions provide the instructional and related services to the students and their communities.

MORE SUPPORT

To make advanced education more accessible to people with disabilities, the Ministry funded renovations and special equipment, and doubled its funding for support services such as sign-language interpreters and note-takers.

The Ministry supported the development of a shared electronic library co-ordinated by the Open Learning Agency. This library will provide access to information about B.C. library collections, substantially increasing student access to essential resources.

To find ways to improve native participation in advanced education, the Ministry set up a Task Force on Post-secondary Education for native learners.

As well, the Ministry established a Council on Admissions and Transfers to assure that transferring students receive full credit for studies completed at their previous institutions. Further, the Council was to help colleges and universities develop common course credits and admission standards.

MORE AHEAD

By 1994/95, the Ministry hopes to have added 15,000 student spaces in university degree programs, significantly raising B.C.'s participation rate. Teacher training spaces will increase over the next several years to raise the number of graduates. A public consultation process will determine post-secondary education needs in the Fraser Valley.

Growth in programs will continue, including the addition of fourth-year university courses at B.C.'s three new university/colleges in September 1990 and new programs in Fine Arts and Social Work in September 1991. The consortium of colleges and the OLA will develop ways of delivering a complete range of college and university programs to the province's dispersed population.

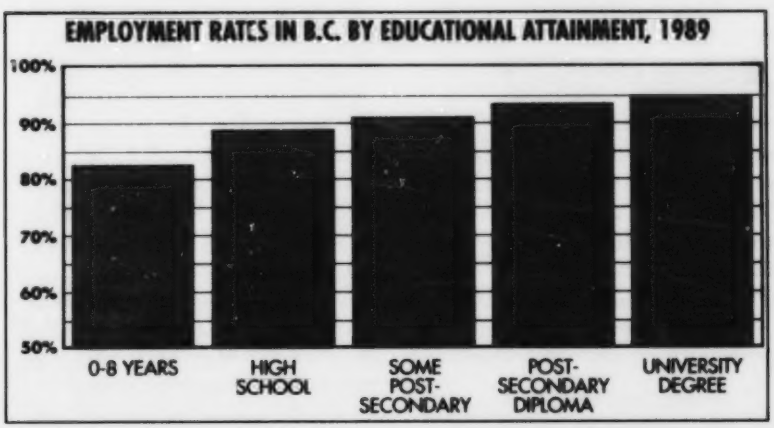
SUPPORTING B.C.'s UNIVERSITIES, COLLEGES AND INSTITUTES

In 1989/90 provincial operating grants for all B.C. public post-secondary institutions increased by 14 per cent over the previous year. This increase represents the government's commitment to helping institutions provide quality education and training, and research opportunities. Besides instruction and research, the grants cover most operating expenses, including support services, student services and administration.

Represented in this 14 per cent increase is $35.3 million in 1989/90 under B.C.'s "Access for All" program. More than half of this additional funding was spent to increase the number of spaces for students; the rest was allocated to program expansion.

The government's University Matching Program provided B.C.'s three universities with $20 million, bringing the government's total contribution at the end of the program's second year to $30 million. Universities use these funds to establish endowments for scholarships, bursaries and research chairs; purchase academic and research equipment; and plan and construct new buildings. For example, the David Lam Management Research Centre ($8.3M), currently under construction at the University of British Columbia, was made possible by matching funds. Similarly, the University of Victoria was able to acquire a new mainframe computer, valued at about $3.5 Million, through this program.

The government matches each dollar donated by the private sector, enhancing the ability of universities to attract funding from private donors. The annual donations are estimated to be four times greater as a result of the program.



ASSISTING STUDENTS FINANCIALLY

The Ministry's B.C. Student Assistance Program (BCSAP) serves students who need financial aid for post-secondary education. The program aims to ensure that limited financial resources do not prevent B.C. residents -- in any region -- from getting the education they want.

BCSAP supplements funds available through savings, investments and family financing. Approximately the same total number of students were assisted as the previous year, but significantly more funds were provided. The B.C. Student Loan Program, for example, increased by $10.5 million over the 1988/89.

BCSAP includes several forms of assistance:

Student Loans
The government approves and guarantees student loans, but banks or credit unions advance the money. The government also pays all interest charges until the student completes school. Six months after completion the student is required to begin repayment. There are two loan programs, both based on financial need:

- the Canada Student Loan Program (federally funded and provincially administered) that benefited 29,000 students in 1989/90. Value of loans issued: $92.5 million.
- the B.C. Student Loan Program (provincially funded and guaranteed) that helped 14,600 students in 1989/90. Value of loans issued: $41 million.

Equalization Fund
Approximately 6,300 first- and second-year students in post-secondary studies received grants for expenses beyond their basic education costs in 1989/90. The fund reduces, but does not eliminate, the need to borrow. Cost: $20 million.

Supplemental Fund
About 240 students, proceeding to a college program after completing their Adult Basic Education in 1989/90, were eligible for additional assistance -- $1,000 each in non-repayable funds. Cost: $0.2 million.

Other Programs
A variety of programs complemented basic assistance, including:

- a Loan Remission Program that reduces student loans to $12,000 (first degree/diploma) and as much as $16,000 (second degree/diploma) for eligible graduating students;
- Relocation Assistance for eligible students who must relocate to attend a post-secondary institution at least 50 kilometres away;
- the Premier's Excellence Awards for top Grade 12 students (in each college region) who plan to attend a provincial post-secondary institution;
- Work Study for needy students;
- ABESAP for students in Adult Basic Education programs in secondary and post-secondary institutions;

IAS Helps Employees Cope with Closures

Company closures and lay-offs mean hardship for individuals and entire communities. The Ministry works through Industrial Adjustment Service (IAS) committees to reduce that hardship. With provincial and federal funding, the committees bring employers and employees together to deal with major changes in their workplace and find ways to ease the adjustment process.

By mid-February 1990, Sullivan Mine owned by Cominco Ltd., -- Kimberley's single largest employer -- had laid off 114 employees permanently and 722 on recall. An IAS committee set up an outplacement office for those permanently laid-off, providing job counselling, contacting potential employers, distributing employee profiles, and funding out-of-town interviews and job relocation costs. Another IAS committee offered free skill-upgrading courses to employees on recall and helped them find temporary jobs.

In February 1990, financial difficulties forced Lamford Forest Products Ltd. to close its sawmill in New Westminster and lay off 150 employees. An IAS committee took a skill inventory of the employees, identified potential job opportunities and informed prospective employers of the employees' availability. Ninety-three were placed in new jobs.

- Co-op Education for students combining career experience and studies;
- Graduate Student Teaching and Research Assistantships for graduate university students employed as teaching or research assistants;
- Athletic Awards for students on university sports teams; and
- the Matching Endowment Fund for students earning bursaries and scholarships (the government matches endowments from corporate and private donations to universities and colleges).

TRAINING APPRENTICES

As the economy grows, the demand for skilled people increases. B.C.'s Apprenticeship Training System addresses the need for well-trained tradespeople and for the new skills demanded by major changes in technology.

Under this system, an apprenticeship involves three parties:

- an employer who provides on-the-job training and gains loyal employees who have skills specific to the job;
- an apprentice who fulfils training and job obligations, and gains valuable, recognized skills in a trade; and
- the Ministry which provides in-school technical training and counselling, and gains a skilled labour force for the province.

The system provides training in 190 trades, ranging from roofing and baking to carpentry and electrical work. About 55 trades involve classroom training as well as on-the-job training, and 29 of these are inter-provincial red seal trades -- those that are recognized throughout Canada. About 85 per cent of B.C.'s apprenticeships fall within these red seal trades.

Besides providing apprenticeship technical training, the system offers remedial education in math, science and English. It also provides opportunities for journeymen to update and upgrade their skills, especially those skills related to new technologies. A trades qualification program offers tradespeople who did not serve a formal apprenticeship a chance to qualify for their journeyman certificate.

In 1989/90 about 14,000 apprentices were registered for training, representing a sustained growth in the system overall and a dramatic increase in the construction trades. The total number represents a net gain of 1,800 apprentices over the previous year. Within Canada, B.C. ranks third, after Ontario and Alberta, in numbers of apprentices.

The cost of apprenticeship is shared. The employer pays 80 per cent; the apprentice pays one per cent, and the rest is contributed by the provincial and federal governments. Because the apprenticeship system serves the whole province, the Ministry decentralized its budget to address regional needs more easily.

The government spent a total of $13.5 million on apprenticeship technical training in 1989/90, of which $9.1 million was recovered from the federal government. Each year, the money that the Apprenticeship Training System puts back into the economy makes it one of the government's best investments.

In future, the apprenticeship system will focus on growth in apprenticeship in the manufacturing sector and increasingly, provide the classroom component

for many trades in the private sector instead of at public institutes. The Ministry will continue to play an active role in developing national training standards so apprentices can move during training without losing credit. Overall, the apprenticeship system will remain responsive to labour and market fluctuations, and technological change.

HELPING GROUPS UNDER-REPRESENTED IN THE LABOUR FORCE

Because of changes in the population's age structure, fewer young people will enter the B.C. labour force during the next several years. Opportunities will increase for groups that are now under-represented in the workplace: native people, persons with disabilities, older workers and new immigrants. This increase will strengthen the demand for programs to help these people enter the labour force.

B.C.'s "Access for All" program, described in this report, is addressing some of this demand. Other such programs include Adult English as a Second Language (ESL) programs, which increased 21 per cent in 1989/90 over the previous year, and programs for persons with disabilities.

SERVING THE DISABLED

More than 200,000 British Columbians between ages 15 and 64 have disabilities. Of these, approximately 56,800 are unemployed yet able to work in some capacity. The Vocational Rehabilitation Service (VRS) plays the lead role in co-ordinating comprehensive, vocation-oriented programs to help persons with disabilities gain employment and financial independence.

A network of rehabilitation consultants and community-based partnerships offers three main programs throughout B.C.:

Vocational Rehabilitation
VRS helps clients develop realistic vocational goals and training plans that reflect their needs as well as the needs of the workplace. The service focuses on abilities rather than disabilities, helping individuals identify their own strengths and skills. It provides support and financial resources so the clients can benefit from:

- comprehensive assessments of characteristics such as job aptitudes and physical abilities;
- technical aids, such as computers;
- restorative goods, such as hearing aids;
- technical/vocational training;
- special equipment, such as vehicle lifts; and
- goods and services, as needed, to follow up training.

Personal Placement Program
Through this provincial work-in-government program, VRS provides work experience for job-ready individuals. The ministries provide work experience opportunities and the training plans and recover 100 per cent of an employee's wages and benefits from the program.

Disabled Persons Training Program
The Ministry offers a 50 per cent wage subsidy to employers for on-the-job training of disabled individuals, and up to $3,000 for work site modifications. Employers provide a training plan and ensure that the training represents a component of each client's vocational rehabilitation plan.

Doors to Lifelong Learning

Adult illiteracy is an economic and a social problem. It swells the personal and financial costs of industrial accidents, unemployment and retraining. It lowers the sense of dignity and self-worth.

On September 8, 1989 -- World Literacy Day -- the Ministry of Advanced Education, Training and Technology announced projects worth a million dollars to be cost-shared with the federal Secretary of State. These 32 literacy projects included:

- an Adult Literacy Contact Centre;
- a Basic Skills Upgrading Program; and
- a Literacy Video.

During 1989/90, VRS consultants handled about 4,000 requests overall, directly serving 1,800 clients. Expenditures reached approximately $3 million. Because demand for VRS increased that year, the Ministry reviewed the way programs and services were delivered to ensure access for everyone who needed them. Then with co-operation from the non-profit, community-based organizations, it began to expand the delivery system -- a project that will continue into 1990/91.

For students with disabilities, all colleges and BCIT have personnel to assist in accessing the support needed to participate successfully in post-secondary education. As well, all colleges offer special education programming in the areas of vocational skill training, pre-employment skills, academic upgrading, and personal skills.

Other future directions involve developing more flexible and responsive employment support programs that help persons with disabilities enjoy equal access to jobs.

FOSTERING AN INTEREST IN SCIENCE EDUCATION

B.C. is experiencing an increasing demand for scientists, engineers and technologists -- which could lead to a shortage of qualified professionals in these areas. The proportion of post-secondary students studying science, computing and mathematics is low compared to other provinces. Even among secondary school students, interest in studying science and math is low.

The Ministry is working to nurture the natural curiosity young children have in science and maintain it through high school and beyond. One of its key activities is the Scientists in the Schools Program.

PUTTING SCIENTISTS IN THE SCHOOLS

Astronomy, mathematics, ocean science and 17 other scientific disciplines took centre stage in B.C. classrooms during 1989/90 as scientists, engineers and technologists offered to turn students on to science. About 280 volunteers gave hands-on demonstrations, hosted field trips and led discussions to promote a broad awareness of science and technology. They acted as role models to help shape students' perceptions of their professions. And they actively encouraged students to consider science-related careers.

B.C.'s Scientists in the Schools Program -- the first of its kind in Canada -- focused on two levels:

- Grades 4 to 7, when students often lose interest in science and math; and
- Grades 10 to 12, when students are starting to make career choices.

The program reached students all across British Columbia, including students in remote districts. In all, approximately 42,000 students in all regions and most school districts took part.

Science World British Columbia administered the program on behalf of the province, paying all travel costs and expenses for volunteers. The cost to the Ministry in 1989/90 was $175,000.

The degree of response to the program has encouraged the Ministry to make Scientists in the Schools an on-going, annual event. Several Canadian provinces are looking to the program as a model for developing their own.

SUPPORTING RESEARCH AND DEVELOPMENT ACTIVITIES

Technology is changing faster than ever. It is developing new products and processes, and creating new techniques for existing tasks. To remain competitive, B.C. must invest in research and development.

The Ministry provides research grants to universities, and invests in research and development projects that range from a new Media and Graphics Interdisciplinary Centre to the engineering design and impact study of B.C.'s TRIUMF-KAON project. It has also agreed to support the province's outstanding role in Canada's Networks of Centres of Excellence.

PROMOTING CENTRES OF EXCELLENCE

In 1989 the federal Minister of State (Science and Technology) announced a four-year, $240-million program to establish National Networks of Centres of Excellence. These networks were designed to promote the best science and technology research in Canada. They co-ordinate universities, companies and government agencies in high-level research in natural sciences, medical sciences, and engineering.

B.C. universities are partners in 13 out of 14 of these networks -- a participation rate equalled only by Ontario's. The University of B.C. leads three of the networks, the University of Victoria leads one.

B.C. benefits from these networks in many ways. It received 17 per cent ($44.2 million) of the total federal funding granted to the networks. It will gain directly from research results in areas such as biotechnology for insect pest management, bacterial diseases, robotics and intelligent systems, telecommunications, and ocean production. The industrial links of this research will reach the manufacturing, resource and high technology sectors across the province.

With representation on all seven of the biotechnology networks and a leadership role in three, the University of B.C. is becoming recognized as a national and world leader in this field. In turn, the University is expected to spur the growth of that sector within the province.

Further advantages to B.C. include millions of dollars of economic activity and the creation of at least 550 jobs directly and 820 jobs indirectly.

Although the federal government is funding all direct costs of research and networking, the province made a commitment to support the B.C. players in the Centres of Excellence. Twenty million dollars has been budgeted over four years for infrastructure and support services at B.C.'s three universities and three companies: International Broodstock Technologies, Biomedical Research Centre, and Microtek Research and Development.

INCREASING PUBLIC AWARENESS OF SCIENCE AND TECHNOLOGY

In 1989/90 the Ministry continued to take the mystique out of science and technology and raise public awareness of their importance. Given the rapid pace of change, it is crucial for people to be receptive and adaptable to technological change.

Amalgamation Improves Science and Technology Investment

In August, the B.C. government committed $8.5 million to its first combined applied research and development competition. The amalgamation of the Ministry's Science and Technology Development Fund (STDF) competition and the Science Council of British Columbia's Assistance Grants for Applied Research (AGAR) program improves the administrative efficiency of the grant allocation process. The STDF-AGAR competitions, however, continue to stress the role of science and technology in B.C.'s economic development.

Science Council of British Columbia peer review committees chose 140 companies/organizations to receive the 1989/90 awards. Examples included:

- Concord Biomedical, Burnaby - DNA probe to detect tuberculosis ($64,980);
- Okanagan Aggregates, Armstrong - cold, in-place recycling of asphaltic concrete pavements ($50,000);
- Innovative Aquaculture, Squirrel Cove - technology for producing low-cost manila clam seed ($60,615);
- University of B.C. - intensifier-injector for natural gas fuelling of diesels ($142,040);
- AgriForest Technologies, Kelowna - tissue culture technology to improve and produce fruit trees ($34,000); and
- University of Victoria - adaptive controller to steer a hydrographic survey craft ($38,590).

Science World Reaches Out

Science World British Columbia in Vancouver brings science and technology to life. It excites visitors with its imaginative exhibits and demonstrates how science and technology touch everyday lives.

This year, the Ministry helped to spread interest in Science World programs throughout the province by contributing a total of $132,000 to regional Science Fairs and to two special outreach programs:

- Esso Science Squad - science performances at community festivals, fairs and rodeos; and
- Road Shows - interactive science shows for students in Grades 10 and under.

HOLDING SCIENCE AND TECHNOLOGY WEEK

An estimated 20,000 people took part in the Ministry's first province-wide Science and Technology Week, October 22 to 28, 1989. The week focused on activities for school children, exhibits for the general public, corporate involvement and media relations.

Science World British Columbia, the B.C. Institute of Technology, the province's three universities and several companies staged a variety of events, all focusing on science and technology. They held open houses, tours and special activities, such as poster and essay contests, and a name-the-mascot contest. Winners received a computer for their school. Print and media materials reached about one-third of all British Columbians.

The purpose of the week was to make the public aware of B.C.'s strong accomplishments in science and technology, and to demonstrate the role these fields play in the economy and in day-to-day living.

The particular achievements of people who work in science and technology drew attention, too. During Science and Technology Week, winners of the B.C. Science and Engineering Awards received gold medals. The Science Council of B.C. selected outstanding individuals and teams working in the natural sciences, health sciences, applied science or industrial innovation. Other awards were made for Entrepreneurial Science, Lifetime Achievement and Science Communication.

Response to Science and Technology Week was strong. Business communities -- especially high-tech businesses -- were very keen, and the participants expressed interest in making it an annual event. The Ministry's investment of $145,000 yielded returns that will likely justify a continued commitment to future Science and Technology Weeks.

IDENTIFYING TRAINING/EDUCATION NEEDS AND EMPLOYMENT OPPORTUNITIES

The mix and growth of occupations in the B.C. labour market is changing. It is critical that planners and policy makers remain informed and able to anticipate these changes. The Ministry has been working to gather information and develop tools that would help identify the needs and opportunities that lie ahead.

One example is the Link File, a joint project involving the Ministry of Advanced Education, Training and Technology, the Ministry of Education and all post-secondary institutions. The project pools several student-based information systems to provide current data on student flow and enrollment patterns.

UNDERSTANDING THE LABOUR MARKET

The Ministry has been strengthening its ability to meet the shifting needs of the B.C. labour market by accessing current, detailed data on changing job demands. By identifying labour market needs and providing related data, the Ministry can:

- increase awareness and understanding of labour market dynamics;
- contribute to policies and strategies addressing labour market issues; and
- assist the planning and implemention of labour market programs.

During 1989/90, the Ministry created a Labour Market Information System (LMIS). The data in the system comes from provincial and federal government sources, the employer-employee community and other private and public agencies. The LMIS provides information for:

- ongoing assessments of labour market conditions;
- identification of labour market trends;
- a framework for projecting demands for labour in specific industries and relating those demands to supply; and
- the support of activities of public and private agencies contributing to the functioning of the labour market.

One example of the application of LMIS information is the identification and characterization of occupational skill shortages. Present shortages are associated with continuing high levels of unemployment and the need for better information to match new jobs with available workers. The project incorporates several types of information: background data on employment and education levels, demand projections, information on supply of skills, indicators of shortages, and surveys and studies. The results will help to:

- assess the impact and effectiveness of training programs; and
- improve the effectiveness of regional planning and development.

As the LMIS is being developed, many other projects are getting underway or being planned. The LMIS is a tool that will help take labour market analysis and planning into the next century.

PLANNING PROGRAMS THAT DEVELOP INDIVIDUAL POTENTIAL

Recognizing the importance of helping British Columbians de-

More Nurses Needed

During 1989, a documented shortage of nurses emerged as a serious, province-wide issue. In response, the Ministry of Advanced Education, Training and Technology and the Ministry of Health undertook a joint initiative to Treasury Board. The groundwork has been laid for more than 200 additional spaces to come on stream in early 1990/91.

TEC in Nanaimo

B.C.'s Training and Enterprise Centre (TEC) Network reached Nanaimo in November 1989. This Centre is the second of its kind: Kamloops was the first. Private and public agencies work together through the centres to co-ordinate training, apprenticeship, employment support and business development with the result that efforts are better co-ordinated and public access is improved.

Each centre houses the agencies and services most suitable to its region. Participants in Nanaimo's centre include the:

- Ministry of Advanced Education, Training and Technology;
- Malaspina College;
- Greater Nanaimo Chamber of Commerce;
- Open Learning Agency; and
- Business Resource Centre supplied by the Ministry of Regional and Economic Development.

velop their potential, the Ministry plans programs that cover a wide range of education and training. Some of these programs are global in nature. One example is a scholarship program that supports students doing part of their studies in an Asian institution and instructors teaching in Asia for three to nine months. However, most of the program planning focuses on opportunities within B.C., and a newly appointed Task Force on Employment and Training plays a key role.

FOCUSING ON EMPLOYMENT AND TRAINING

The March 1989 Speech from the Throne and the subsequent Budget Speech acknowledged the need for a proactive approach to issues of:

- employment;
- training;
- structural unemployment, and
- adjustment to changes in the labour force.

These issues are critical to personal growth and to the economic competitiveness of B.C.

The Ministry established a Task Force on Employment and Training in August, involving representatives from wide-ranging interests in the employment and training community. At that time, the Canadian Labour Market and Productivity Centre, with the federal Department of Employment and Immigration, was conducting Task Force Symposia and consultation sessions on employment, training and other labour issues. The B.C. Task Force took part in several of these Symposia.

The purpose of the Task Force is to:

- make recommendations on important, short-term training and employment issues;
- recommend long-term strategies to ease workplace adjustments, increase employment and employability, and help structurally unemployed workers; and
- recommend ways to gain consensus among industry and labour and advise government on strategies concerning employment and training.

During 1989/90, the Task Force reviewed several issues and provided input on some. They included the:

- report on "Labour Market Strategies for Economic Growth into the 21st Century;"
- status of renegotiation of the Canada/B.C. Agreement on Training;
- report of the de Grandpre Advisory Council on Adjustment;
- federal-provincial Program for Older Worker Adjustment Agreement;
- report on women and free trade; and
- report of the Skills Development Advisory Committee.

PLANNING DIRECTIONS FOR RESEARCH AND DEVELOPMENT

Planning the development of science and technology in relation to the economy of B.C. is a critical task. Through the 1990s and into the 21st century, two groups are playing major roles in this planning: the Premier's Advisory Council on Science and Technology (PACST) and the Strategic Planning for Applied Research and Knowledge (SPARK) committees.

PLANNING THROUGH PACST

The business and academic leaders who form PACST advise the Premier on a wide range of matters concerning science and technology. PACST also recommends policy direction. Working with the Council's Secretariat, the Ministry of Advanced Education, Training and Technology supports the Council's recommendations by developing and implementing policy flowing from its advice.

Some of PACST's 1989/90 recommendations concerned:

- establishing a Science and Technology Action Plan to help implement B.C.'s Science and Technology Policy;
- participating in the national forum of Science and Technology Advisory Councils in Halifax;
- developing a new range of technologies and technology-based industries using hydrogen as an environmentally friendly fuel; and
- setting up economic development regional workshops.

PLANNING THROUGH SPARK

Administered by the Science Council of British Columbia, committees under SPARK (Strategic Planning for Applied Research and Knowledge) are made up of representatives from industry, government and the education community. They look for economic development opportunities in creative applications of science and technology. They try to assess the role research and technology play in B.C.'s various economic sectors and find ways to strengthen this role. The Ministry helps implement the committees' recommendations.

Working sector by sector in 1989/90, SPARK involved more than 300 volunteers in such activities as:

- organizing workshops and forums;
- publishing planning and strategy reports;
- hiring sector champions or co-ordinators to spearhead the application of science and technology; and
- publishing the SPARK newsletter.

Both the provincial and federal government contribute funds to SPARK. In 1989/90, the Ministry of Advanced Education, Training and Technology contribution was $500,000.

CO-ORDINATING PROGRAMS AND LIAISING WITH OTHER AGENCIES

The Ministry represents the provincial government in negotiating many agreements with other agencies and co-ordinates several joint programs and services. These combined efforts offer British Columbians a range of benefits in advanced education, training and technology.

WORKING WITH FEDERAL AGENCIES

The governments of B.C. and Canada work together on wide-ranging projects, programs and services. Here are just a few of the co-operative federal-provincial programs in which the Ministry played a very active role during 1989/90:

- Vocational Rehabilitation for Disabled Persons Agreement
- Alcohol and Drug Treatment and Rehabilitation Agreement
- Canada-B.C. Agreement on Training
- Canada-B.C. Program for Older Worker Adjustment Agreement (assisting workers over age 55 who have lost their jobs through lay-offs, exhausted their unemployment insurance and have few prospects for re-employment)
- Canada-B.C. Science and Technology Development Subsidiary Agreement (funded the Pharmical Project - a pharmaceutical chemical processing facility)
- Canada-B.C. Agreement on the proposed KAON factory at U.B.C. (a two year engineering design and impact study)
- Canada-B.C. Training Agreement on Equity Sub-committee (developing a strategy and action plan that focuses on equity in apprenticeship).

During 1989/90, as in most years, the Ministry was also active in negotiating agreements in which other provincial ministries played the lead roles. Examples include the Canada-B.C. Immigration Agreement and the Federal-Provincial Agreement on Enhancing the Employability of Social Assistance Recipients.

CONCLUSION

The Ministry of Advanced Education. Training and Technology leads a system that directly and indirectly serves a great many British Columbians. significantly affecting the economic and social development of the entire province. In 1989/90. the Ministry made strides in achieving its three major goals:

Building indivídual potential

By introducing its flagship program. "Access for All." the Ministry improved opportunities for training and post-secondary education in all regions. It further increased access to opportunities through its student financial assistance program. its operating funds for public institutions and its apprenticeship program. The Ministry also provided special programs for groups. such as those with disabilities. who are underrepresented in the labour force. And it worked to build individual potential by fostering an interest in science education through the schools.

Developing and applying new knowledge

The Ministry supported a wide range of research and development activities. including the 140 projects it funded through the Science and Technology Development Fund/Assistance Grants for Applied Research. It also made a commitment to support the involvement of B.C. universities and companies in the National Networks of Centres of Excellence. To increase public awareness of the importance of science and technology. the Ministry sponsored events such as Science and Technology Week and British Columbia Science World outreach programs.

Being responsive in a changing world

By identifying employment. training and education needs and opportunities through programs such as the Labour Market Information System. the Ministry is better able to respond to changes in the labour force. Planning is the next step and the Ministry has set up a Task Force on Employment and Training to help plan programs that develop individual potential. In planning for research and development. the Ministry relies heavily on the Premier's Advisory Council on Science and Technology (PACST) and the Strategic Planning for Applied Research and Knowledge (SPARK) committees. The Ministry also works with many other agencies. negotiating agreements and co-ordinating programs that help British Columbians.

Progress in meeting these three goals should help British Columbia deal with the kinds of multi-faceted pressures a rapidly changing society can create. As a result. the Ministry will have a significant role to play in the province's future.

MINISTRY OF ADVANCED EDUCATION, TRAINING AND TECHNOLOGY
MINISTRY OFFICES AND TEC CENTRES

APPENDIX

MINISTRY OF ADVANCED EDUCATION, TRAINING AND TECHNOLOGY
SUMMARY OF PROGRAM EXPENDITURES

($,000)

DESCRIPTION	1987/88 ACTUAL EXPENDITURES	1988/89 ACTUAL EXPENDITURES	1989/90 ACTUAL EXPENDITURES (UNAUDITED)
Administration & Support Services	18,095	20,551	25,217
Women's Programs *	1,102	676	–
Advanced Education Programs			
Operating Contributions – Universities	325,435	372,334	374,146
Matching Fund	–	–	20,000
Operating Contributions – Colleges & Institutes	299,384	329,993	318,986
Capital Debt Servicing	85,917	93,306	96,078
Distance Education	11,354	20,718	18,168
International Education	–	490	500
Access & Enrollment Programs	–	–	35,070
Student Financial Assistance	29,358	43,476	50,184
Job Training & Apprenticeship Programs	27,354	18,419	22,508
Science & Technology Programs	7,970	13,554	25,144
TOTAL MINISTRY BUDGET	$ 805,969	$ 913,515	$ 986,000

* Women's Programs was transfered to the Ministry of Government Services and Women's Programs during 1989/90.

TOTAL ENROLLMENT IN B.C. POST-SECONDARY INSTITUTIONS, INCLUDING FULL-TIME AND PART-TIME STUDENTS.

	1987/88	1988/89	1989/90
Universities			
UBC			
undergrad	23,227	23,653	24,048
graduate	4,067	4,196	4,413
SFU			
undergrad	12,404	12,693	14,323
graduate	1,494	1,546	1,600
UVIC			
undergrad	10,839	11,182	11,918
graduate	1,165	1,296	1,340
sub-total	**53,196**	**54,566**	**57,642**
Colleges			
Camosun	4,617	5,145	5,436
Capilano	4,413	4,918	5,135
Cariboo	4,084	3,934	4,338
Douglas	5,177	5,739	5,532
East Kootenay	897	970	1,100
Fraser Valley	2,605	3,028	3,004
Kwantlen	4,256	4,725	4,932
Malaspina	3,408	3,556	4,381
New Caledonia	2,809	2,681	2,794
North Island	3,553	3,675	3,290
Northern Lights	1,075	978	1,055
Northwest	992	954	1,053
Okanagan	4,268	4,589	5,314
Selkirk	1,484	1,595	1,776
Vancouver	10,642	10,058	9,763
sub-total	**54,280**	**56,545**	**58,903**
Institutes			
BCIT	15,268	15,371	15,457
Emily Carr	1,026	994	1,201
*OLA	5,113	5,166	6,296
PMTI	140	205	235
sub-total	**21,547**	**21,736**	**23,189**
TOTAL	**129,023**	**132,847**	**139,734**

Source: B.C. Post-Secondary Enrollment Statistics (Tables 10 and 70)

* Represents Open College enrollments only.

APPENDIX

BASE PROVINCIAL OPERATING GRANTS TO B.C. POST-SECONDARY INSTITUTIONS GROUPED BY TYPE OF INSTITUTION.

($,000)

	1987/88	1988/89	1989/90
Universities			
UBC	184.692	193.784	215.006
SFU	69.364	72.753	81.424
UVIC	58.289	61.116	67.736
sub-total	**312.345**	**327.653**	**364.166**
Colleges			
Camosun	18.402	21.606	25.096
Capilano	12.529	13.922	16.627
Cariboo	13.411	14.554	19.858
Douglas	16.655	18.359	21.302
East Kootenay	5.304	5.263	6.342
Fraser Valley	8.908	9.073	10.373
Kwantlen	13.987	15.289	18.104
Malaspina	13.987	15.048	18.927
New Caledonia	11.829	12.282	14.197
North Island	6.921	7.687	8.456
Northern Lights	6.332	6.783	8.441
Northwest	6.223	6.412	7.566
Okanagan	14.860	16.410	20.766
Selkirk	10.248	10.148	12.443
Vancouver	41.616	43.685	48.397
****sub-total**	**201.212**	**216.521**	**256.894**
Institutes			
BCIT	54.642	57.479	64.556
Emily Carr	4.745	4.974	5.758
OLA	*5.547	15.130	17.982
PMTI	1.645	1.695	1.897
****sub-total**	**66.579**	**79.278**	**90.193**
****TOTAL**	**$580.136**	**$623.452**	**$711.253**

Source: Ministry of Advanced Education. Training and Technology Fact Book

* Represents OLI only. 1988/89 and 1989/90 represents OLA's operating grant.

**Totals may vary slightly due to rounding.

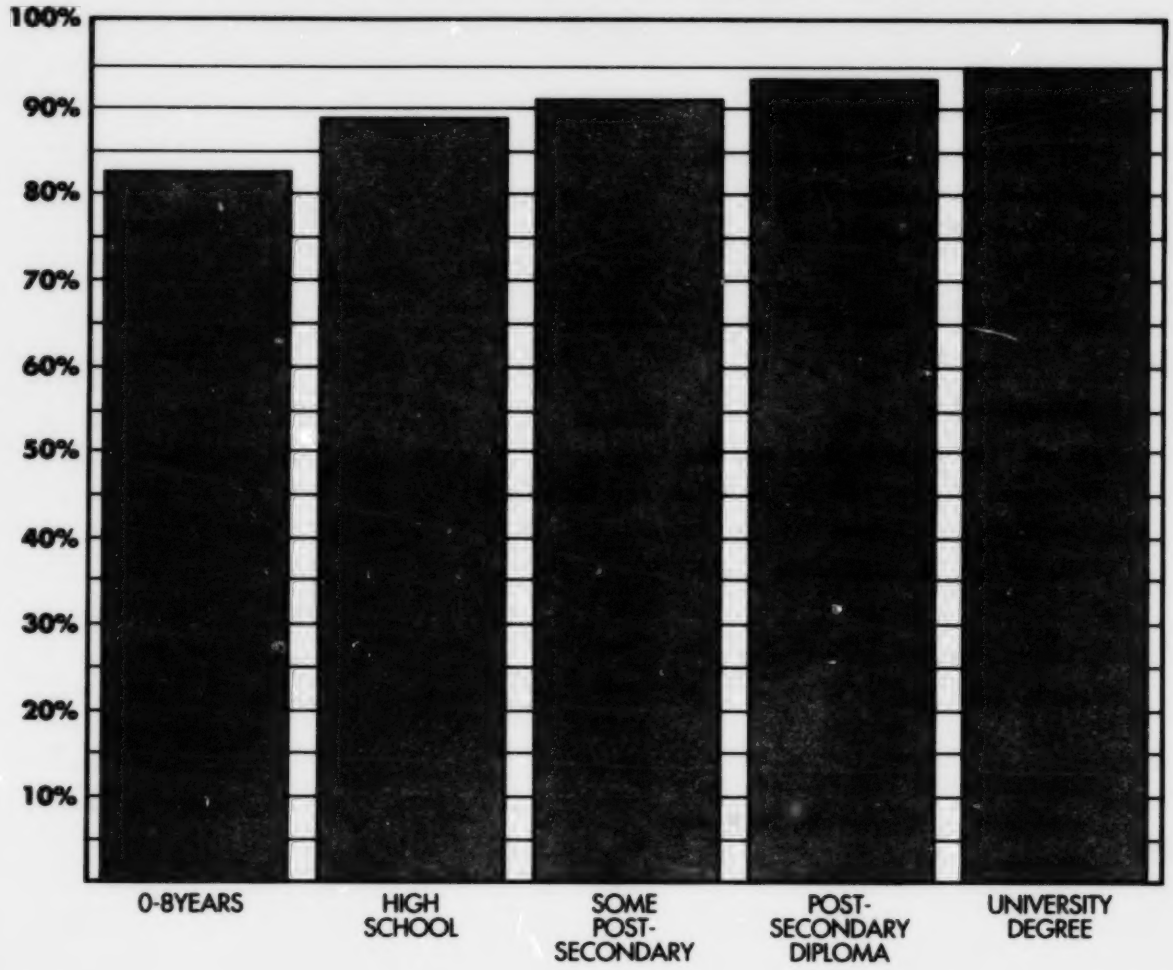
APPENDIX

THE DISTRIBUTION OF EXPENDITURES FOR THE SCIENCE AND TECHNOLOGY FUND.

($,000)

Research and Development	
B.C. Research (Targetted Research)	1.000
Technology Assistance Program	750
STDF-AGAR Competition	10,500
TRIUMF	1.281
Miscellaneous Contributions	523
	14,054
Infrastructure	
Science Council of British Columbia	3.800
Premier's Advisory Council on Science and Technology	201
Discovery Foundation	1.741
Miscellaneous Contributions	922
	6,664
Human Resource Development	241
Public Awareness	1.153
	22,112
Canada/British Columbia Subsidiary Agreement on Science and Technology Development (ERDA)	3.032
TOTAL	**$25,144**

EMPLOYMENT RATES IN B.C. BY EDUCATIONAL ATTAINMENT, 1989



Source: Labour Force Survey

APPENDIX

Spending for each region on job training and vocational rehabilitation and the number of apprentices registered, certified and receiving certification as journeymen.

Industrial Adjustment Services

Spending by region	1989/90
Interior	$ 85,000
North	90,000
Vancouver Island	157,000
Lower Mainland	430,000

Vocational Rehabilitation Services (VRS) and Personal Placement Program (PPP)

Spending by Region	Vocational Rehabilitation* Service	Personal Placement Program
Interior	$ 280,000	$ 55,000
North	220,000	95,000
Vancouver Island	775,000	121,000
Lower Mainland	1,685,000	226,000

Apprenticeship	**1987**	**1988**	**1989**
Total Apprentices Registered	10429	11590	13700
New Apprentices Registered	4788	5300	6115
Apprentices Certified	3195	2868	2680
Certificates of Qualification	3302	3243	3247

Note: Apprenticeship information is available only by calendar year.